Biannual Report

October 2010 – March 2011

Submitted by the Global Learning Portal, AED

Contents

List of Abbreviations

CIES	Comparative International Education Society
CoE	[Teacher] College of Education
GLP	Global Learning Portal
ICT	Information and communication technology
KIE	Kigali Institute of Education
MINEDUC	[Rwanda] Ministry of Education
MINICT	[Rwanda] Ministry of Information and Communication Technologies
NCDC	National Curriculum Development Center
NICI	National Information and Communication Infrastructure
ORINFOR	Office Rwandais d'Information
REC	Rwanda Education Commons
RNEC	Rwanda National Examination Council
RURA	Rwanda Utilities Regulatory Agency
TSC	Teachers Service Commission
TTC	Teacher Training College
UAF	Universal Access Funds
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
VSO	Volunteer Service Overseas
WRI	Waterford Research Institute

REC Achievements in October 2010 – March 2011

Summary

The goal of REC in Y3 is to achieve and demonstrate positive impact on Rwanda's education system by expanding access to quality materials, connecting educators with each other, and building strong and lasting partnerships with other education and technology institutions.

In the first half of Y3, REC negotiated a major agreement to supply Internet connectivity to Rwanda's teacher training colleges (TTCs) at a highly subsidized rate. This agreement required the participation of six major education and technology institutions, the contracting and oversight of local suppliers and installers, and outreach to TTCs. As a result of this effort, REC will work closely with the Rwanda Ministry of Education (MINEDUC) and TTCs in the second half of Y3 to make effective use of this connectivity, particularly by integrating the REC portal and REC learning videos into the TTC curriculum.

The acquisition and development of printed and video education continued throughout this period. Over 600 multimedia content assets were created, and approximately 350 multimedia videos contributed by partners were distributed through REC channels. Equally importantly, all existing content was indexed by the REC taxonomy so that users can browse and search effectively for them.

Version 2.0 of the REC portal was launched in Feburary. The version, built by Google engineers from recommendations gathered during usability testing in June – July 2010, increases user-friendliness and expands the capacity of existing features. As a result, the REC portal is now a strong, standalone technology product that can be scaled and replicated.

REC faced a substantial challenge in this reporting period. The suspension of AED from receiving new U.S. government funds led to the delay of an expected budget realignment. As a result, the connectivity activity was delayed and end-user trainings postponed from early Q1 to late Q2. To meet this challenge, REC will be increasing its capacity building efforts in Q2 in collaboration with IT instructors from TTCs, as well as staffers from Volunteer Services Overseas (VSO).

Policy and coordination

- REC worked with public, private, and government partners to negotiate an agreement to provide Internet connectivity to TTCs starting in Q2 2011. Connectivity will be subsidized at 80 percent by Rwanda's Universal Access Fund (UAF), administered by the utilities regulator, and at 20 percent by REC. REC will also fund one-time installation costs, and will work with public and private institutions on a sustainability plan for the connectivity. This agreement is a milestone for Rwanda, a major achievement for REC. (See sidebar below for details.)

- REC continues to advise the creation of ICT policy. In December, REC was invited to participate in the evaluation of NICI II and the planning process for NICI III, the five-year plans for the implementation of Rwanda's national ICT vision. In March, REC was invited to review NICI III, which will be released in Q2 2011 and set a path in the 2011 – 2015 period.

- REC remains an active participant in the global conversation on ICT and education. In December, REC was invited (and funded) to speak at a conference on African-European ICT policy dialogues, the Euro-Africa Week on ICT Research and e-Infrastructures, in Helsinki, Finland. REC representatives were also invited to moderate panels on the Digital Divide at the 2011 Comparative and International Education Society (CIES) annual conference in Montreal, Canada.

Connecting the Dots: Internet at TTCs

The puzzle pieces were on the table, but they did not yet fit together.

Rwanda's Universal Access Fund (UAF) was established in 2004 to increase access to Internet connectivity, particularly in education. In October, REC brought together the MINEDUC, the Rwanda Utilities Regulatory Agency (RURA, which administers the UAF), and the head of the Teacher Services Commission (TSC, which runs the teacher training colleges) to discuss extending Internet access to TTCs.

In December, REC met with TSC, UNICEF, and VSO, which were collaborating on bringing new computer labs to all TTCs.

As a result of these meetings, the new computer labs at TTCs will be connected via satellite dishes to the Internet starting May 2011. Each TTC will have about 1MB bandwidth per month—enough to use the REC portal, among other education services.

Connectivity will be funded at 80 percent by the UAF, and 20 percent by REC.

Content development

The REC Content Strategy calls for a three-pronged approach in amassing relevant and quality content: acquiring materials from partners that need little or no adaptation; acquiring materials from partners for adaptation by REC and Rwanda's education institutions; and facilitating the development of materials that fills education content

gaps. In this six-month period, REC focused on the third prong, and facilitated the development over 600 multimedia content assets. REC also continued to identify content partners and acquire materials from them.

- *Test preparation materials.* REC acquired final exam preparation materials from the Rwanda National Exam Council (RNEC) for distribution via newspapers. In October and November, REC published 48 pages of these materials in *Oasis* to assist students in secondary 3 and secondary 6 to prepare for high-stakes exams in chemistry, biology, physics, geography, history, English, and Swahili.

- *Encyclopedias.* World Book agreed to contribute six sets of encyclopedias to all of Rwanda's TTCs and COEs, for an estimated cost of $30,000 for the items alone. This contribution was negotiated through the REC content team, in alignment with stated needs from NCDC. (See Partnerships below for further information.)

- *Broadcast video materials.* REC developed and filmed 48 videos on math and science education topics. These videos incorporate video materials acquired from the Mindset Network in South Africa, and aim to demonstrate good pedagogical strategies for incorporating multimedia materials in the classroom. In March, the international development charity Volunteer Services Overseas offered to train REC video content staff to ensure that the broadcast video programming featured teachers demonstrating student-centered pedagogies.

- *Multimedia video materials.* REC launched a video channel featuring 320 video education materials from the Mindset Learn series, targeting secondary school learners. Featured subjects are physics, chemistry, geography, math, English, and entrepreneurship. The channel also features videos from the Mindset Cabanga series, targeting primary school science learners.

- *Digital materials.* REC developed 555 teacher tools for use at teacher training colleges. Teacher tools, which provide guidance and pedagogical strategies to teachers and are aligned with the national curriculum, were identified with the National Curriculum Development Center as a materials gap in Rwanda's education content landscape. The teacher tools were produced with a team of Kigali-based secondary school teachers.

Platform

The REC platform consists of channels for distributing content, and for fostering communities of educators.

- *Print channel*. The test preparation materials described above were circulated through the newspaper *Oasis* to an estimated 2,000 schools, where S3 and S6 students use them to prepare for high-stakes exams. Testing gains will be ascertained together with RNEC. World Book encyclopedias will be distributed alongside teacher trainings in Q2.

- *Broadcast video channel.* The REC "Smart Learning" video program, featuring Mindset video materials and a filmed model classroom in Rwanda, is broadcast twice weekly, on Saturday and Sunday. Programs feature a popular call-in segment, in which viewers ask questions of the teachers filmed in their classrooms. The broadcast video channel was shuttered briefly in February, but reestablished in collaboration with MINEDUC and ORINFOR.

- *Online video channel*. The Mindset Learn and Cabanga are available through the REC portal, where they are categorized by level, subject, and interest, and can also be directly viewed at the REC YouTube channel (www.youtube.com/user/EducationCommonsRW). Even though training and outreach activities are not scheduled to begin until Q2 2011, several videos have been viewed over 1,000 times, due to word of mouth.

- *Online portal*. Version 2.0 of the REC online portal was launched in February 2011. This version contains (1) an overhauled digital library system that indexes materials by subject and grade level, displays detailed information about the library asset, and opens within the portal window; (2) 400 new multimedia education materials developed through REC content activities; (3) a user-friendly sign-in and registration process that also helps new users create email accounts; and (4) a simplified look and feel that guides users to featured areas. (See Capacity Building below for information on user training.) One further version of the portal will be released in Q2, *but the REC portal is now a powerful, scalable, and replicable technology product.*

Capacity building

REC had targeted Q1 2011 for a rollout of trainings to portal end users. Unfortunately, expected budget realignment was postponed due to the suspension of AED, and as a result, the connectivity necessary to support these trainings will not be completed until May. The training has been rescheduled for May – June 2011.

- Extensive planning for these trainings was completed in this reporting period. The May training will reach a total of 33 TTC IT instructors, TTC principals, and

VSO staff volunteering at TTCs; the June trainings will reach more than 2,500 teacher instructors and teacher learners at TTCs. (See Appendix A for planned training schedules and agendas.)

- The online portal was pilot tested at TTC Save, a connected college near Butare, in Q1 2011. Teachers from TTC Save have begun downloading library materials and posting to test discussion threads, and their recommendations have been collected and passed on to Google usability researchers and engineers.

Partnerships

REC maintains several key strategic partnerships, and continues to identify and develop collaborations with new partners. In particular:

- *MINEDUC* remains a critical REC partner. REC advises MINEDUC in numerous policy, planning, and budging sessions, and MINEDUC support of REC enables the alignment of REC activities with national policy and curriculum, as well as leverage in negotiations for content and channel development. MINEDUC remains key to the REC sustainability plan, in which key REC assets would be owned and administered by Ministry officers, with support from education institutions and the private sector.

- *TSC* continues to support REC initiatives. In particular, TSC played a central role in enabling REC to collaborate with UNICEF and VSO in the multi-partner coordination effort that resulted in the extension of connectivity to TTCs. REC interaction with TTCs is approved by TSC and guided by their recommendations and schedule.

- *KIE* has replaced NCDC as a key content and training partner going forward. KIE, rather than NCDC, will oversee TTC curriculum in the future. Planned activities with KIE include the joint development of ICT materials for TTCs, and linking with Teacher Education in Sub-Saharan Africa (TESSA; www.tessafrica.net) to make available regional curricular materials through REC in Rwanda.

- *Google* remains a critical partner to REC, as it continues, free of cost, to develop a powerful and unique product in the REC portal. (See the Y2 Work Plan for a description of product advantages.) With the rollout of REC 2.0, and the release of REC 2.1 in Q2, Google involvement with REC is expected to diminish, as the portal becomes a self-sustaining platform for an online community.

Other collaborations during this period of performance include the following partners:

- *RURA* and *Artel*, to subsidize and provide, respectively, approximately 1MB bandwidth to all TTCs. Bandwidth will be dynamically allocated based on use, to strengthen high-use TTCs and ensure that bandwidth is not wasted.
- *Waterford Research Institute*, to maintain and expand a pilot project for English-language software use at a Kigali primary school. As a direct result of the WRI pilot, the primary school applied for and received funding to rebuild and double the number of computers in their lab, enabling more primary students to benefit from the software.
- *RNEC*, to acquire past exam questions. They will be reformatted to develop test preparation materials distributed via newspapers.
- *World Book*, to process and ship 90 encyclopedia sets, free of cost, to Rwanda. REC will distribute them to TTCs.
- *MINICT, to* explore the expansion of REC video programming. The Office of the President initiated this collaboration, after vie*wing t*he REC "Smart Learning" video broadcast program.

Monitoring and evaluation plan

During this period, REC began its implementation of the revised M&E strategy described in Y3 work plan. Between October 2010 and February 2011, the REC M&E team initiated the first round of data collection at the TTCs for 2011.

In 2011, the M&E team will measure the impact of REC at TTCs. Specifically, the M&E team will research the impact of the various types of materials/ideas (e.g., discussion posts, previous year's test questions, teacher tools, multimedia modules, YouTube videos) obtained via REC-developed channels (print, online, video, digital, and mobile) on (1) what and how teacher educators teach, and (2) how much and how well teacher learners learn.

To provide evidence relevant to this general question, data has been gathered on the following questions:

1) What is the relationship between *teacher educators'* 1) access to materials/ideas provided through REC-developed channels, 2) use of this material in planning and teaching, 3) quality of the content they include in their classes, 4) the degree to which they adopt new pedagogies, *AND* 5) the level of learning of their students?
2) What is the relationship between *teacher learners'* 1) access to materials/ideas provided through REC-developed channels, 2) use of the material in doing

assignments and preparing for examinations, 3) their perception of the teaching/learning process, *AND* 4) the level of their learning?

The team drafted and finalized self-administered questionnaires for three respondent groups: TTC principals, TTC teacher educators, and TTC teacher learners. Questionnaires included items related to demographic information, access and use of ICT and REC materials, perception of teaching and learning practice, perception of teaching and learning philosophies, and access and use of professional development experience for principals and teacher educators.

A representative sample at a 95 percent confidence interval was drawn from all 11 TTCs in Rwanda for teacher educators and teacher learners. Since the population size for TTC principals was very small, the team decided to collect the data from all principals (11). Questionnaires will be returned and analyzed in Q2; a follow-up impact survey will be created and implemented in Q4 2011.

Appendix A: Training Plan (Draft)

Overview: Training of Trainers

The REC education portal was designed to create a community of teacher educators and teacher learners at teacher training colleges (TTCs) around the use of high-quality digital materials. The 28–29 May training will provide instruction to three groups critical to facilitating the use of the online community:

- IT instructors at TTCs (11 total)
- Principals of TTCs (11 total)
- VSO staff working at TTCs (11 total)

This document outlines the purpose and agenda for the training. It will be followed in June by trainings of teacher learners at TTCs.

Training Objectives

TTC principals are potential promoters of the REC portal, and can create a culture in which use of an online community is encouraged. REC will train principals so that they can understand, use, and promote the portal. Specifically, they will:

1. Review the purpose of an online community
2. Gain technical skills to use the online library and discussion boards
3. Brainstorm strategies to improve education using ICTs, including the REC portal

TTC IT instructors are a critical in providing ongoing support to teacher educators and teacher learners. REC will train IT instructors so that they can understand and use the portal, as well as to train others to use the portal. Specifically, they will:

1. Review the purpose of an online community
2. Gain technical skills to use the online library and discussion boards
3. Learn to train teacher learners on the use of the portal
4. Learn to troubleshoot and report technical problems with computer labs and the portal

VSO staff is a secondary support group that can provide ongoing training and assistance to teacher educators and teacher learners. They will:

1. Review the purpose of an online community
2. Gain technical skills to use the online library and discussion boards
3. Learn to train teacher learners on the use of the portal

Training Schedule

Time	Session	Activities
9:00 a.m.	Introductions	• Short introductions of research topics and technology background
9:30 a.m.	Discussion: Collaboration	• Questions: How have you worked together with people in this room? How do you collaborate at your university?
9:45 a.m.	Site overview: Walkthrough and registration	• Review of all REC portal pages • Registration of all trainees
10:15 a.m.	Break	
10:30 a.m.	Skill training: Library page	• Overview of REC library • Practice finding, saving, printing resources
11:15 a.m.	Skill training: Discussions page	• Overview of REC discussions • Practice launching, conducting online discussions
12:00 p.m.	Lunch	
1:00 p.m.	Discussion: Incentives for use	• Questions: How can portal be best used at TTCs? How can portal use be encouraged? What should be the first portal activity?
1:30 p.m.	Discussion: Wrap-up	• Feedback, questions, and conclusions
2:00 p.m.	End	

29 May: TTC IT instructors, VSO staff

Time	Session	Activities
9:00 a.m.	Training: Training new users	• Overview of portal usage: Strategies and tips on training new portal users, including portal introductions, registration, participation, and library.
9:45 a.m.	Training: Troubleshooting	• Demonstration of all possible errors that can appear when browsing REC Web site and how to handle it, report it, and where to report
10:15 a.m.	Break	
10:30 a.m.	Discussion: Integrating portal content into curriculum	• Question: How can Internet research be added to curriculum?
11:00 a.m.	Discussion: Open	• This can be open general discussion to all REC activities.
11:30 a.m.	Discussion: Upcoming training plan	• Presentation of draft upcoming training plan and brainstorming on it and come up with final plan; provide a printout for every participant.
12:00 p.m.	Lunch	

29 May: TTC principals

Time	Session	Activities
9:00 a.m.	Discussion: Role of principals in promoting IT	• Questions: What impact can be if principals are ambassadors of promoting IT in teaching • Who is a right person to encourage change in teaching?
9:30 a.m.	Review: Library and discussions pages	• Demonstrate library resources samples, including teacher tools template, videos smart learning videos, or Mindset videos) and their roles in improving teaching • Demonstrate role of discussion boards and collaboration among teachers
10:15 a.m.	Break	
10:30 a.m.	Discussion: ICT basics courses	• Questions: How current ICT basics curriculum in TTC helps teacher instructors and learners in their work • How online research can be added as chapter on ICT basics curriculum
11:45 a.m.	Discussion: Usage and management of IT labs	• Questions: What available free time for teacher instructors to use lab? • What available free time for teacher learners to use lab? • How can we manage lab? Who can be responsible, how to report technical problems for a better long-life of the computers and where to report?
12:00 p.m.	Lunch	

Overview: User training

The REC education portal was designed to create a community of teacher educators and teacher learners at teacher training colleges (TTCs) around the use of high-quality digital materials. The 6–14 June trainings will provide instruction to:
- teacher instructors at TTCs (258 total)
- teacher learners at TTCs (1,600 total)

This training follows the 28–29 May training of TTC IT instructors, TTC principals, and VSO staff. This document outlines the purpose and agenda for these trainings. All trainings will be one day.

Training Objectives

TTC teacher instructors are a primary target population for the REC portal. They will have the most consistent access to connected computers, because beginning May 2011, computer labs at all TTCs will be connected to the Internet (funded by REC). TTC instructors must find benefit using the portal for this initiative to succeed. REC will train TTC teacher instructors to:
1. Review the purpose of an online community
2. Gain technical skills to use the online library and discussion boards

TTC teacher learners are also a primary target population for the REC portal. They will have consistent access to connected computers while at their TTC, but may not have access once they become a primary school teacher. TTC teacher learners will learn to make use of the REC online community while learning to be teachers. REC will train TTC teacher learners to:
1. Review the purpose of an online community
2. Gain technical skills to use the online library and discussion boards

Training Schedule

TTC teacher instructors

Time	Session	Activities
9:00 a.m.	Introductions	• Short introductions of research topics and technology background
9:30 a.m.	Discussion: Collaboration	• Questions: How have you worked together with people in this room? How do you collaborate at your university?
9:45 a.m.	Site overview: Walk through and registration	• Review of all REC portal pages • Registration of all trainees
10:15 a.m.	Break	
10:30 a.m.	Skill training: Library page	• Overview of REC library • Practice finding, saving, printing resources
11:15 a.m.	Skill training: Discussions page	• Overview of REC discussions • Practice launching, conducting online discussions
12:00 p.m.	Lunch	
1:00 p.m.	Discussion: Incentives for use	• Questions: How can portal be best used at TTCs? How can portal use be encouraged? What should be the first portal activity?
1:30 p.m.	Discussion: Wrap-up	• Feedback, questions, and conclusions
2:00 p.m.	End	

TTC teacher learners

Time	Session	Activities
9:00 a.m.	Introductions	• Short introductions of research topics and technology background
9:30 a.m.	Discussion: Collaboration	• Questions: How have you worked together with people in this room? How do you collaborate at your university?
9:45 a.m.	Site overview: Walk through and registration	• Review of all REC portal pages • Registration of all trainees
10:15 a.m.	Break	
10:30 a.m.	Skill training: Library page	• Overview of REC library • Practice finding, saving, printing resources
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1:00 p.m.	Discussion: Incentives for use	• Questions: How can portal be best used at TTCs? How can portal use be encouraged? What should be the first portal activity?
1:30 p.m.	Discussion: Wrap-up	• Feedback, questions, and conclusions
2:00 p.m.	End	

Appendix B: Portal End-Users

TTC	Teacher educators	Teacher learners (S5 and S6)
ZAZA	21	440
MATIMBA	28	314
GACUBA	22	231
KIRAMBO	23	347
MBUGA	31	439
RUBENGERA	19	658
SAVE	31	500
BYUMBA	24	484
MURURU	24	225
BICUMBI	20	268
RUKARA CoE	25	630
Total	**268**	**4536**

Training assumptions:

- TTCs connected to Internet
- REC promotion materials available
- Budget for training
- **Teacher educators** will be training on how to use the portal, how to access the library and discussion forum, and how to post or reply on discussion forums.
- **Teacher learners** will have the same training as teacher educators, they will also learn how to create emails and register for the portal.